08/750,715

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=> display history all full

     (FILE 'USPAT' ENTERED AT 09:47:24 ON 28 OCT 1997)

     FILE 'EPOABS' ENTERED AT 09:47:48 ON 28 OCT 1997
L1             0 SEA 4035799/PN
L2             0 SEA DE 4035799/PN
L3             0 SEA DE 4035799A/PN
L4             2 SEA 4035799/DN
L5             0 SEA PCT/EP94/00117/APN
L6             0 SEA PC/EP93/03077/APN
L7             0 SEA PCT/EP93/03077/APN
                 E RIGLER/IN
L8            16 SEA ("RIGLER, D"/IN OR "RIGLER, GUENTER"/IN OR "RIGLER, JO
SEF
                  K"/IN OR "RIGLER, JOSEF-KARL"/IN OR "RIGLER, LLOYD E"/IN
OR
                 "RIGLER, RUDOLF"/IN)
L9             0 SEA EP 093077W/APN
L10            0 SEA EP 09303077W/APN
L11            0 SEA (EP 09303077W)/APN
L12            0 SEA SE 09000707W/APN
L13            0 SEA 09000707W/APN
L14            0 SEA 09000707/APN
L15            0 SEA 9000707/APN
L16            0 SEA (EP(W)09303077W)/APN
L17            1 SEA EP09303077W/APN
L18        25760 SEA ANALYS? OR ANALYZ?
L19        40738 SEA VOLUME#
L20            3 SEA (L18(10A)MOLECUL?)(20A)(L19(10A)SMALL?)
L21           16 SEA ((SAMPLE# OR SPECIMEN#)(5A)L19)(P)(SPECTROSCOP? OR (OP
TIC
                 AL?(5A)(L18 OR ANALYTICAL?)))
L22            0 SEA L20 AND L21

     FILE 'JPOABS' ENTERED AT 10:26:52 ON 28 OCT 1997
L23            0 SEA (L18(10A)MOLECUL?)(20A)(L19(10A)SMALL?)
L24            8 SEA ((SAMPLE# OR SPECIMEN#)(5A)L19)(P)(SPECTROSCOP? OR (OP
TIC
                 AL?(5A)(L18 OR ANALYTICAL?)))

     FILE 'USPAT' ENTERED AT 10:29:51 ON 28 OCT 1997
L25            7 SEA (L18(10A)MOLECUL?)(20A)(L19(10A)SMALL?)
L26          242 SEA ((SAMPLE# OR SPECIMEN#)(5A)L19)(P)(SPECTROSCOP? OR (OP
TIC
                 AL?(5A)(L18 OR ANALYTICAL?)))
L27            0 SEA L25(L)L26
L28           74 SEA L26(P)(SMALL? OR MOLECUL?)
L29            5 SEA L26(P)SMALL?(P)MOLECUL?
L30           12 SEA L26(P)MOLECUL?


     FILE USPAT
       * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
       *               W E L C O M E   T O   T H E                    *
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FILE EPOABS

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* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*     E U R O P E A N   P A T E N T   A B S T R A C T S         *
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FILE JPOABS

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* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
*     J A P A N E S E   P A T E N T   A B S T R A C T S         *
*                                                               *
* CURRENTLY, DATA IS LOADED THROUGH THE ABSTRACT PUBLICATION    *
* DATE OF NOVEMBER 1996.                                        *
* THE LATEST GROUPS RECEIVED ARE: PAJ547 & PAJ548.              *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
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=> d l25 1-7 ; d l25 1-7 rel

1. 5,637,469, Jun. 10, 1997, Methods and apparatus for the detection of an analyte utilizing mesoscale flow systems; Peter Wilding, et al., 435/7.21; 422/55, 56, 57, 58; 435/6, 7.2, 287.1, 287.2, 287.9, 288.4, 288.5, 288.7, 810, 970; 436/164, 514, 518, 524, 527, 531, 533, 534, 805, 806, 807, 809 :IMAGE AVAILABLE:

2. 5,571,398, Nov. 5, 1996, Precise capillary electrophoretic interface for sample collection or analysis; Barry L. Karger, et al., 204/603, 601 :IMAGE AVAILABLE:

3. 5,545,897, Aug. 13, 1996, Optically-based chemical detection system; Michael D. Jack, 250/339.13, 339.12, 343; 356/419, 436, 437 :IMAGE AVAILABLE:

4. 5,486,335, Jan. 23, 1996, Analysis based on flow restriction; Peter Wilding, et al., 422/55, 58, 61, 68.1, 73; 435/7.2, 7.21, 287.1, 287.2, 288.7; 436/164, 524, 809 :IMAGE AVAILABLE:

5. 5,250,188, Oct. 5, 1993, Process of removing and concentrating desired molecules from solutions; Ronald L. Bruening, et al., 210/672, 679, 684, 685 :IMAGE AVAILABLE:

6. 5,180,914, Jan. 19, 1993, Mass spectrometry systems; Stephen C. Davis, et al., 250/287, 286, 292 :IMAGE AVAILABLE:

7. 4,523,039, Jun. 11, 1985, Method for forming perfluorocarbon ethers; Richard J. Lagow, et al., 568/615, 677, 683 :IMAGE AVAILABLE:

```
US PAT NO:      5,637,469 :IMAGE AVAILABLE:           L25: 1 of 7
REL-US-DATA:    Continuation of Ser. No. 877,702, May 1, 1992, abandoned.

US PAT NO:      5,571,398 :IMAGE AVAILABLE:           L25: 2 of 7

US PAT NO:      5,545,897 :IMAGE AVAILABLE:           L25: 3 of 7

US PAT NO:      5,486,335 :IMAGE AVAILABLE:           L25: 4 of 7
REL-US-DATA:    Continuation of Ser. No. 250,100, May 26, 1994, abandoned,
                  which is a continuation of Ser. No. 877,701, May 1,
                  1992, abandoned.

US PAT NO:      5,250,188 :IMAGE AVAILABLE:           L25: 5 of 7

US PAT NO:      5,180,914 :IMAGE AVAILABLE:           L25: 6 of 7

US PAT NO:      4,523,039 :IMAGE AVAILABLE:           L25: 7 of 7
```

REL-US-DATA: Continuation of Ser. No. 139,181, Apr. 11, 1980, abandoned, which is a continuation-in-part of Ser. No. 901,905, May 1, 1978, abandoned.

=> d l25 1-6 kwic ; d l25 1-7 ab

US PAT NO: 5,637,469 :IMAGE AVAILABLE: L25: 1 of 7

SUMMARY:

BSUM(11)

An . . . substances present in very low concentrations, and produce analytical results rapidly. Another object is to provide easily mass produced, disposable, **small** (e.g., less than 1 cc in **volume**) devices having mesoscale functional elements capable of rapid, automated **analyses** of preselected **molecular** or cellular analytes, in a range of biological and other applications. It is a further object of the invention to. . .

US PAT NO: 5,571,398 :IMAGE AVAILABLE: L25: 2 of 7

SUMMARY:

BSUM(12)

The invention is directed to a capillary electrophoretic system and method for precise and accurate post-column-manipulation of **molecules** separated by capillary electrophoresis and for collecting or **analyzing small volumes** of sample components exiting from the capillary system without disrupting the electric current required for separation. The system of the. . .

US PAT NO: 5,545,897 :IMAGE AVAILABLE: L25: 3 of 7

SUMMARY:

BSUM(11)

It is therefore one object of this invention to provide an in-situe spectral **analyzer** for determining the relative concentrations of **molecular** species in a gas or liquid stream, the spectral **analyzer** being rugged, of low cost, and of a **small** physical **volume**.

US PAT NO: 5,486,335 :IMAGE AVAILABLE: L25: 4 of 7

SUMMARY:

BSUM(10)

An . . . that can analyze microvolumes of sample and produce analytical results rapidly. Another object is to provide easily mass produced, disposable, **small** (e.g., less than 1 cc in **volume**) devices having mesoscale functional elements capable of rapid, automated **analyses** of preselected **molecular** or cellular analytes, in a range of applications. It is a further object of the invention to provide a family. . .

US PAT NO: 5,250,188 :IMAGE AVAILABLE: L25: 5 of 7

ABSTRACT:
A . . . the desired molecules or desired molecules complexed with the cation by contacting the solid cation-ligand-matrix-desired molecule complex with a much **smaller volume** of a receiving solution in

which said desired molecules are soluble. The concentrated ions or **molecules** thus removed may be **analyzed** and/or recovered by known methods. The process is useful in measuring the concentrations of molecules originally present at parts per. . .

SUMMARY:

BSUM(14)

The . . . be present at low concentrations. The desired molecules are subsequently recovered from the separation column by flowing through it a **small volume** of a receiving phase which contains a solubilized reagent which need not be selective, but which will quantitatively strip the **molecules** from the cation-ligand-matrix. The **analysis** of the desired metal ions in the concentrated solution is accomplished by known methods such as atomic absorption spectroscopy. The. . .

US PAT NO: 5,180,914 :IMAGE AVAILABLE: L25: 6 of 7

SUMMARY:

BSUM(4)

This is particularly important if the mass spectrometry system is to be used to **analyse** the structures of large **molecules**, contained in biological and biochemical samples, for example. Such samples may only be available in relatively **small volumes** and the samples may be delivered to the mass spectrometry system, for analysis, over a relatively short time scale (typically. . .

US PAT NO: 5,637,469 :IMAGE AVAILABLE: L25: 1 of 7

ABSTRACT:
Disclosed are devices for detecting the presence of a preselected analyte in a fluid sample. The devices comprise a substrate microfabricated to define a sample inlet port, and a mesoscale flow system that includes a sample flow channel extending from the inlet port. The mesoscale flow system further includes an analyte detection region in fluid communication with the flow channel comprised of a binding moiety for specifically binding the analyte. The detection region is constructed with a mesoscale dimension sufficiently small to enhance binding of the binding moiety and the analyte. The binding moiety may be immobilized in the detection region. The mesoscale detection systems of the invention may be used in a wide range of applications, including the detection of cells or macromolecules, or for monitoring reactions or cell culture growth.

US PAT NO: 5,571,398 :IMAGE AVAILABLE: L25: 2 of 7

ABSTRACT:
A capillary electrophoretic system and method for accurate and precise post-column manipulation of molecules separated by capillary electrophoresis is disclosed. The system of the invention includes a separation capillary; a detector positioned close to, and preferably less than approximately one cm from the outlet end of the capillary; and a sheath which surrounds and directs a collection buffer over the capillary outlet end. With the detector positioned as described, precise and accurate correlation is possible between detection of the separated components of a sample and their emergence from the capillary. The detector preferably includes optical fibers connected to a spectrophotometric detection method, such as UV detection or fluorescence, including laser induced fluorescence. The sheath collection buffer, the capillary and an electrophoresis buffer reservoir, for

supplying buffer to the inlet end of the capillary, are in electrical contact in an electrical circuit and provide the electric field required for separation of a sample of molecules. The separated components of the sample are mixed with collection buffer as they emerge from the outlet end of the capillary. They are then collected into or on any collection device, such as vials, collection capillaries or membranes, or they are transferred to other devices for further analysis, such as mass spectroscopy.

US PAT NO: 5,545,897 :IMAGE AVAILABLE: L25: 3 of 7

ABSTRACT:
An in-situe chemical gas or fluid analyzer for vehicles, industrial, environmental and process control applications. As applied to a vehicle (1) having an internal combustion engine, the analyzer includes: (i) a source of electromagnetic radiation (14, 16); and (ii) a sampling cell (12) which collects emission gases of interest and which is capable of withstanding hostile environments while preserving a "clear" optical path between the sensor sampling cell and the source of radiation. The analyzer further includes: (iii) a solid state sensor (24, 26, 28, 30, 32) of monolithic construction which selectively detects electromagnetic radiation that is absorbed or emitted by one or more chemical species of interest, that compensates for temporal and spatial variations in illumination level provided by the source, and that provides an electrical signal output, in either analog or digital format, that is related to the measured concentrations. The sensor includes, in combination, a plurality of highly sensitive electromagnetic radiation detectors (26), spectral filters (24) which may utilize multiple layers of deposited dielectric thin films and/or selectively absorbing layers, and low noise electronics which performs a variety of functions including amplification (28), multiplexing (30), analog to digital (A/D) conversion (33), signal processing (32), and input/output (I/O). In a presently preferred embodiment each radiation detector is a thermopile detector that is integrated upon a common substrate with the support electronics and an associated optical bandpass filter.

US PAT NO: 5,486,335 :IMAGE AVAILABLE: L25: 4 of 7

ABSTRACT:
Disclosed are devices and methods for detecting the presence of a preselected analyte in a fluid sample. The invention provides a device comprising a solid substrate, typically on the order of a few millimeters thick and approximately a 0.2 to 2.0 centimeters square, microfabricated to define a sample inlet port and a mesoscale flow system. A sample is passed through the mesoscale flow system, and the restriction or blockage of flow through the flow system is detected as a positive indication of the presence of the analyte. The mesoscale flow system includes in one embodiment a primary sample flow channel extending from the inlet port, and a fractal region, in fluid communication with the flow channel, comprising bifurcations leading to plural secondary flow channels. The device may be adapted for operation in conjunction with a pump, for example, to induce flow of a sample through the flow system. A detector may also be provided for detecting analyte induced changes in flow properties in the mesoscale flow system. The devices of the invention may be used in a wide range of applications, including the detection of cells or macromolecules, such as viruses.

US PAT NO: 5,250,188 :IMAGE AVAILABLE: L25: 5 of 7

ABSTRACT:
A method is disclosed for the quantitative removal and concentration of desired molecules or ions, such as gases, anions and amino acids, from a source solution which may contain larger concentrations of other molecules. The method comprises bringing the source solution into contact with a solid cation-ligand-matrix consisting of a cation complexed to a

ligand molecule covalently bonded to a matrix consisting of an organic spacer bonded to a solid inorganic support through a silicon atom. The cation has an affinity for the desired molecules to form a complex between the desired molecules and the cation portion of the solid cation-ligand-matrix at binding sites initially held by H.sub.2 O or other weakly coordinated ligands or via ion pairing. The desired molecule complex is broken releasing either the desired molecules or desired molecules complexed with the cation by contacting the solid cation-ligand-matrix-desired molecule complex with a much **smaller volume** of a receiving solution in which said desired molecules are soluble. The concentrated ions or **molecules** thus removed may be **analyzed** and/or recovered by known methods. The process is useful in measuring the concentrations of molecules originally present at parts per billion levels; in the removal of low levels of toxic molecules such as ammonia or anions such as chromate from potable and saline water; in the preparation of ultrapure salts and gases; and in the recovery of valuable molecules present in low concentrations as in the separation of amino acids, etc.

US PAT NO: 5,180,914 :IMAGE AVAILABLE: L25: 6 of 7

ABSTRACT:
A mass spectrometry system comprises a source of ions for analysis, an ion storage device for separating the source ions as a function of their different mass-to-charge ratios, means for dissociating the separated source ions in order to generate daughter ions and an ion mirror for analyzing the daughter ions as a function of the mass-to-charge ratios. The mass spectrometry system has particular utility in the analysis of large molecules contained in biological and biochemical samples.

US PAT NO: 4,523,039 :IMAGE AVAILABLE: L25: 7 of 7

ABSTRACT:
A method is disclosed for producing fluorocarbon ethers wherein a high molecular weight polyether is reacted with elemental fluorine to produce a highly fluorinated polyether which is subjected to an elevated temperature sufficient to cause fragmentation of the polymer chain to produce fluorocarbon ethers.

=> d l29 1-5

1. 5,570,697, Nov. 5, 1996, Sensor for analyzing molecular species; Stephen D. Walker, et al. :IMAGE AVAILABLE:

2. 5,190,857, Mar. 2, 1993, Optical method for measuring an analyte using area-modulated luminescence; Fritz S. Allen, et al., 435/7.21; 250/459.1, 461.2; 356/318, 417; 422/82.08; 435/7.1, 968; 436/172, 537, 546, 800, 805 :IMAGE AVAILABLE:

3. 5,026,159, Jun. 25, 1991, Area-modulated luminescence (AML); Fritz S. Allen, et al., 356/318; 250/458.1; 356/417 :IMAGE AVAILABLE:

4. 4,711,118, Dec. 8, 1987, Detection of water entrapped in electronic components; Peter R. Bossard, et al., 73/73, 52; 356/256 :IMAGE AVAILABLE:

5. 4,365,199, Dec. 21, 1982, Nuclear magnetic resonance sample tube insert; Douglas S. McNair, 324/318, 321 :IMAGE AVAILABLE:

=> d acc cls 5570697
5,570,697 IS NOT ON THE FILE

=> d l29 icls

US PAT NO: 5,570,697 :IMAGE AVAILABLE: L29: 1 of 5

US-CL-ISSUED: 128/719, 633

=> d l29 ccls

US PAT NO: 5,570,697 :IMAGE AVAILABLE: L29: 1 of 5

=> d l29 1-5 kwic

US PAT NO: 5,570,697 :IMAGE AVAILABLE: L29: 1 of 5

SUMMARY:

BSUM(10)

Frequency modulated **spectroscopy** as described by Bjorklund in U.S. Pat. No. 4,297,035 and dual frequency modulation **spectroscopy** as described by Gallagher in U.S. Pat. No. 4,765,736 are techniques for increased sensitivity to a **molecular** species of interest. These techniques have limitations because, until the present sensor, continuously tunable laser diodes have not been available for wavelengths shorter than 1200 nm, see Cooper et at., "Near-infrared diode lasers monitor **molecular** species," Laser Focus World (November 1992). Techniques to increase the path length through a **small sample volume** are also described, for example, in the publication by S. M. Chernin, entitled "A New Generation of Multipass Systems," SPIE. . .

US PAT NO: 5,190,857 :IMAGE AVAILABLE: L29: 2 of 5

DETDESC:

DETD(7)

It is understood that the number of analyte **molecules** in any **volume** element of a given **specimen** is subject to statistical fluctuations; the magnitude of such fluctuations is of the order of the square root of the number of analyte **molecules**. Therefore, when analyte is present at sufficiently high concentration, the statistical fluctuations represent a **small** enough fraction of the analyte concentration that the medium can be treated as if it contained a statistically signficant mean concentration of analyte per unit **volume**. Such **specimens** may be treated to a good approximation as a homogeneous continuum. This homogeneity, and the concentration and path length dependence are necessary conditions of the Beer-Lambert absorption law that underlies conventional absorption and luminescence **spectroscopy**. Conventional analytical fluorometry and spectrofluorometry using state-of-theart spectrofluorometers offer detection limits for analytes in solution at concentrations as low as. . .

US PAT NO: 5,026,159 :IMAGE AVAILABLE: L29: 3 of 5

DETDESC:

DETD(7)

It is understood that the number of analyte **molecules** in any **volume** element of a given **specimen** is subject to statistical fluctuations; the magnitude of such fluctuations is of the order of the square root of the number of analyte **molecules**. Therefore, when analyte is present at sufficiently high concentration, the statistical fluctuations represent a **small** enough fraction of the analyte concentration that the medium can be treated as if it contained a statistically significant mean concentration of analyte per unit **volume**. Such **specimens** may be treated to a good approximation as a homogeneous continuum. This homogeneity, and the concentration and path

length dependence are necessary conditions of the Beer-Lambert absorption law that underlies conventional absorption and luminescence **spectroscopy**. Conventional analytical fluorometry and spectrofluorometry using state-of-the-art spectrofluorometers offer detection limits for analytes in solution at concentrations as low as. . .

US PAT NO: 4,711,118 :IMAGE AVAILABLE: L29: 4 of 5

SUMMARY:

BSUM(9)

It . . . water vapor accurately and consistently, the integrated measurement, i.e., the measurement made to sense the effect of all the water **molecules** present in the sample, should be made during a time period which is extremely short compared to integration times employed. . . period criterion is satisfied and is easily determined by first making a measurement of the water vapor present in a **small** volume, i.e., less than 1 cc, sample taken from a continuously flowing gas stream. This result is compared to a. . . chamber is controlled to produce the same total pressure as was present in the chamber during the measurement of the **small volume sample**. The time period of the measurement technique is sufficiently short if the value obtained for the continuous flow measurement is within 20 percent of the value obtained during the measurement of the **small volume sample**. A **spectroscopic** absorption technique has been found particularly suitable for making measurements within this relatively short time period. By using the inventive. . .

US PAT NO: 4,365,199 :IMAGE AVAILABLE: L29: 5 of 5

SUMMARY:

BSUM(2)

Accurate measurement and control of sample temperature have long been a problem in nuclear magnetic resonance (NMR) **spectroscopy**. When high-power heteronuclear decoupling is used, interaction between the radiofrequency electric field and the electric dipole moments of **molecules** and ions in the sample causes the sample to be heated and usually increases the uncertainty of temperature measurement. In. . . cases where the ionic conductivity of the sample is low, heat generation due to absorption of RF energy is relatively **small**, and errors in temperature measurements may be made correspondingly **small**. Heating effects become large for aqueous solutions of high ionic strength and the temperature at various locations in the active **volume** of the **sample** may be far from uniform.

=> d 1-12

1. 5,679,514, Oct. 21, 1997, Method for determining the sex of birds; Robert James Baker, 435/6; 536/24.3, 24.31 :IMAGE AVAILABLE:

2. 5,679,513, Oct. 21, 1997, Method for diagnosing ratites; Robert James Baker, 435/6; 536/24.31, 24.33 :IMAGE AVAILABLE:

3. 5,572,031, Nov. 5, 1996, Pressure- and temperature-compensating oxygen sensor; David E. Cooper, et al., 250/343, 345, 346, 351; 356/437 :IMAGE AVAILABLE:

4. 5,570,697, Nov. 5, 1996, Sensor for analyzing molecular species; Stephen D. Walker, et al. :IMAGE AVAILABLE:

5. 5,190,857, Mar. 2, 1993, Optical method for measuring an analyte

using area-modulated luminescence; Fritz S. Allen, et al., 435/7.21; 250/459.1, 461.2; [illegible]5/318, 417; 422/82.08; 435/7.1, [illegible]68; 436/172, 537, 546, 800, 805 :IMAGE AVAILABLE:

6. 5,026,159, Jun. 25, 1991, Area-modulated luminescence (AML); Fritz S. Allen, et al., 356/318; 250/458.1; 356/417 :IMAGE AVAILABLE:

7. 4,955,717, Sep. 11, 1990, Demand modulated atomization apparatus and method for plasma spectroscopy; William B. Henderson, 356/316; 250/288 :IMAGE AVAILABLE:

8. 4,711,118, Dec. 8, 1987, Detection of water entrapped in electronic components; Peter R. Bossard, et al., 73/73, 52; 356/256 :IMAGE AVAILABLE:

9. 4,561,777, Dec. 31, 1985, Apparatus and method for quantitative determination of materials contained in fluids; Leon J. Radziemski, et al., 356/318, 38 :IMAGE AVAILABLE:

10. 4,365,199, Dec. 21, 1982, Nuclear magnetic resonance sample tube insert; Douglas S. McNair, 324/318, 321 :IMAGE AVAILABLE:

11. 4,240,797, Dec. 23, 1980, Assay for reserve bilirubin binding capacity; Jen C. Hsia, 436/97, 173; 546/184, 221, 223, 235, 248; 548/215, 225, 233, 542 :IMAGE AVAILABLE:

12. 3,655,288, Apr. 11, 1972, OPTICAL SYSTEM FOR USE IN AUTOMATIC, SIMULTANEOUS MULTIELEMENT ATOMIC SPECTROSCOPY SAMPLE ANALYSIS APPARATUS; Lee M. Lieberman, et al., 356/315, 300, 320, 418 :IMAGE AVAILABLE:

=> d 1-3 7 9 11 12 kwic

US PAT NO: 5,679,514 :IMAGE AVAILABLE: L30: 1 of 12

DETDESC:

DETD(38)

Clean, high **molecular** weight DNA Is quantified by UV **spectroscopy** (Maniatus et al., 1982, incorporated by reference). Dilution of samples for **spectroscopy** is 25 .mu.l of sample plus 475 .mu.l of 1.times. TE. The A.sup.260 reading is multiplied by 1000 to give. . . of the DNA samples in .mu.g/ml. Samples are adjusted to 300 .mu.g/ml by precipitating out the DNA by adding 0.1 **sample volume** of 3M sodium acetate and 2.5-3 times **sample volume** cold (0.degree. C.) 200 proof ethanol. The concentration of the DNA **samples** multiplied by its original **volume** after dialysis is then divided by 300 to indicate the amount of 1.times. TE that is needed to be added. . .

US PAT NO: 5,679,513 :IMAGE AVAILABLE: L30: 2 of 12

DETDESC:

DETD(41)

Clean, high **molecular** weight DNA is quantified by UV **spectroscopy** (Maniatus et al., 1982, incorporated by reference). Dilution of samples for **spectroscopy** is 25 .mu.l of sample plus 475 .mu.l of 1X TE. The A.sup.260 reading is multiplied by 1000 to give. . . of the DNA samples in .mu.g/ml. Samples are adjusted to 300 .mu.g/ml by precipitating out the DNA by adding 0.1 **sample volume** of 3M sodium acetate and 2.5-3 times **sample volume** cold (0.degree. C.) 200 proof ethanol. The concentration of the DNA **samples** multiplied by its original **volume** after dialysis is then divided by 300 to indicate

the amount of 1X TE that is needed to be added. .

US PAT NO: 5,572,031 :IMAGE AVAILABLE: L30: 3 of 12

CLAIMS:

CLMS(9)

9. A method of determining oxygen concentration in a **molecular** gas sample comprising:
passing light emanating from a laser diode of a wavelength in the 0.75 micrometer to 0.77 micrometer range through a sample cell, said **sample** cell containing a **volume** of said **molecular** gas **sample**;
passing light emanating from said laser diode through a reference cell, said reference cell holding a volume of gas having a. . . absorption of said light passing through said reference cell at said second absorption line;
determining the temperature in said sample cell **spectroscopically** from said signals and said reference cell temperature;
measuring the absorption linewidth for said first and second absorption lines in said. . .

US PAT NO: 4,955,717 :IMAGE AVAILABLE: L30: 7 of 12

SUMMARY:

BSUM(11)

The present invention is a demand modulated electrothermal atomization system for use in a **spectroscopy** system, particularly an ICP **spectroscopy** system, and is intended to reliably and controllably atomize **samples** for high **volume** production for use in ICP **spectroscopy**. The technique and apparatus developed extend the linear dynamic range of ICP **spectroscopy** and improve the counting statistics of an ICP **spectroscopy** instrument by automatically controlling the amount of analyte entering the plasma torch. Furthermore, the inventive apparatus and technique permit adding. . . of volitization temperature to the data produced by the instrument, which has important implications for "finger-printing" samples and for analyzing **molecular** compounds containing various elements.

US PAT NO: 4,561,777 :IMAGE AVAILABLE: L30: 9 of 12

SUMMARY:

BSUM(11)

In . . . of the present invention, in accordance with its objects and purposes, the method hereof may also include flowing a known **volume** of a fluid **sample** through filter material selected to collect the material under investigation with known efficiency, causing dielectric breakdown to occur over a portion of the surface of this filter material from which electromagnetic radiation which include **molecular** emissions and ionic and neutral atomic spectral features characteristic of the elemental species present on the filter material surface portion,. . . background emission or cluttered by a significant number of rapidly dying ionic emission spectral features temporally late features due to **molecular** emissions, a specific time period is chosen after the spark formation before the detection step is performed in order to. . . Preferably, in cases where the impurity material is in low concentration, or its characteristic spectral features are weak because of **spectroscopic** or detection reasons, a plurality of light signals from repeated dielectric breakdowns of the filter material surface are averaged to. . .

US PAT NO: 4, ,797 :IMAGE AVAILABLE: L30: 11 of 12

SUMMARY:

BSUM(14)

The specimen containing the excess spin label is then titrated with a standard bilirubin solution, and is subjected to ESR **spectroscopy**. Instead of adding increasing amounts of bilirubin to a single **volume** of the **specimen**, it will normally be more convenient to divide the specimen into aliquots and add a progressively greater quantity of the. . . is a discontinuity in the curve. At this region of discontinuity, the first specific high-affinity sites of the serum albumin **molecules** have been occupied by the added bilirubin, which has replaced the spin label that was formerly bound. The remainder of. . .

US PAT NO: 3,655,288 :IMAGE AVAILABLE: L30: 12 of 12

DETDESC:

DETD(10)

Referring . . . through said burner body passage into the burner frame 78 to result in the partial conversion of the sample element **molecules** to atoms and the formation of a concentrated atom cloud or **sample volume** 80 in said burner frame to significant advantage for sample analysis by atomic **spectroscopy**. Laminar flow of the gas and air in the burner flame center and in the space between the burner flame. . .

DETDESC:

DETD(27)

In operation, as the relevant **molecules** of each blood sample are partially converted as described to atoms to form the concentrated atom cloud or **sample volume** 80 in the burner flame 78, it may be understood that the sequential energization of the respective hollow cathode lamps. . . attendant rotation at constant speed of the filter wheel 88 would be effective to accomplish the simultaneous, multielement atom fluorescence **spectroscopic** analysis of said blood sample for said six distinct blood sample elements. More specifically, and referring now in addition to. . . cathode lamp 22 would impinge upon and be reflected from the toroidal mirror 50 for focusing substantially at the concentrated **sample volume** or atom cloud 78 to irradiate the latter. This will result in radiation being given off by the atoms of. . .

=> d 1-12 ab

US PAT NO: 5,679,514 :IMAGE AVAILABLE: L30: 1 of 12

ABSTRACT:
The present invention pertains to a method for determining nucleotides of a bird's W specific chromosome. The method comprises the steps of (a) obtaining a DNA sequence which includes the W specific chromosome from the bird. Then, there is the step of identifying nucleotides of the DNA sequence of the W specific chromosome. The present invention also pertains to a method of determining a sex of a bird, and a method of determining genetic relatedness between two birds. The present invention also pertains to a method for identifying a bird. Moreover, the present invention pertains to a method for determining predictive pairing for the genetic diversity of two birds. In another embodiment, the present invention pertains to a method for determining reproductive competence of

a bird. In yet another embodiment, the present invention pertains to a method for predicting reproductive output of two or more birds. The present invention also pertains to a method for determining nucleotides of a bird's W specific chromosome. The method comprises the step of obtaining biological material of the bird. Then, there is the step of introducing a desired microsatellite probe to the biological material so that the W specific chromosome is indicated.

US PAT NO: 5,679,513 :IMAGE AVAILABLE: L30: 2 of 12

ABSTRACT:
A method for determining nucleotides of a ratite's W specific chromosome comprising the steps of obtaining nucleated blood of the ratite. Then there is the step of introducing a desired microsatellite probe to the nucleated blood so the W specific chromosome is indicated. A method for determining the sex of a ratite. The method comprises the steps of obtaining a DNA sequence of the ratite. Then there is the step of identifying the sex of the ratite from the DNA sequence. Additionally, there is a method for identifying a ratite. The method comprises the steps of obtaining a DNA sequence from the ratite. Then there is the step of separating fragments of the DNA sequence by size. Next, there is the step of hybridizing the fragments with desired microsatellite probes. Then there is the step of recording locations of the fragments.

US PAT NO: 5,572,031 :IMAGE AVAILABLE: L30: 3 of 12

ABSTRACT:
RF modulation spectroscopy of a near-infrared tunable laser diode source is used to determine the oxygen concentration in a sample medium. A reference cell containing a known concentration of oxygen is used to calibrate the apparatus as well as to lock the laser on an oxygen absorption line. The temperature of the reference cell is monitored from which the pressure in the reference cell can be determined. Both the temperature and the pressure in the sample cell are monitored, either directly using independent transducers or indirectly using spectroscopic techniques. The oxygen content of the sample is determined, correcting for both temperature and pressure effects.

US PAT NO: 5,570,697 :IMAGE AVAILABLE: L30: 4 of 12

ABSTRACT:
An on-airway breath-by-breath oxygen sensor is described which has the necessary low weight, fast response and high precision required for oxygen consumption measurement. A vertical-cavity surface-emitting laser (VCSEL) is continuously tuned to emit light at the resonance of oxygen, or more generally, the molecular species of interest. The light beam is directed through a sample containing the molecular species of interest onto a detector. The amount of light absorbed is approximately proportional to the concentration of the molecular species of interest in the sample.

US PAT NO: 5,190,857 :IMAGE AVAILABLE: L30: 5 of 12

ABSTRACT:
A luminescence measuring system is provided for detecting luminescence at extremely low concentrations of luminescing moieties. The method employs alternating radiation at a plurality of loci of an inhomogenous solution, where the radiant power is maintained constant, and the irradiated volumes of pairs of loci are systematically varied. With the probability being very low that the same luminescence signal will be obtained in the two or more measurements, by comparing the measurements, one can detect a low luminescence signal in the presence of relatively high noise levels. Various techniques are described for modulating the irradiance and detecting changes in signal.

US PAT NO: 5,026,159 :IMAGE AVAILABLE: L30: 6 of 12

ABSTRACT:
A luminescence measuring system is provided for detecting luminescence at extremely low concentrations of luminescing moieties. The method employs alternating radiation at a plurality of loci of an inhomogenous solution, where the radiant power is maintained constant, and the irradiated volumes of pairs of loci are systematically varied. With the probability being very low that the same luminescence signal will be obtained in the two or more measurements, by comparing the measurements, one can detect a low luminescence signal in the presence of relatively high noise levels. Various techniques are described for modulating the irradiance and detecting changes in signal.

US PAT NO: 4,955,717 :IMAGE AVAILABLE: L30: 7 of 12

ABSTRACT:
A demand modulated electrothermal atomization plasma spectroscopy system intended to reliably and controllably atomize samples. The invention is used in conjunction with a plasma spectroscopic instrument, and includes a feedback control loop that monitors the rate of analyte consumption in a plasma torch and regulates the temperature of an electrothermal atomization means that supplies analyte material to the plasma torch. The feedback system in the preferred embodiment regulates atomization temperature based upon ion or photon count rates.

US PAT NO: 4,711,118 :IMAGE AVAILABLE: L30: 8 of 12

ABSTRACT:
The accuracy of measurements made to determine the extent of water vapor trapped upon encapsulation of an electronic device is significantly enhanced by carefully controlling the measurement technique employed. In particular, the encapsulant is generally punctured and the water vapor thus released is monitored. It has been found that to obtain an accurate measurement of the magnitude of the water vapor released, this measurement must be made within 0.1 second of the time of encapsulant punctured and released into a glass system. By using an absorption technique with suitable electronics, this time requirement is fulfilled and significantly more accurate quantitative measurements of entrapped water vapor are obtained.

US PAT NO: 4,561,777 :IMAGE AVAILABLE: L30: 9 of 12

ABSTRACT:
Apparatus and method for near real-time in-situ monitoring of particulates and vapors contained in fluids. Initial filtration of a known volume of the fluid sample is combined with laser-induced dielectric breakdown spectroscopy of the filter employed to obtain qualitative and quantitative information with high sensitivity. Application of the invention to monitoring of beryllium, beryllium oxide, or other beryllium-alloy dusts is demonstrated. Significant shortening of analysis time is achieved from those of the usual chemical techniques of analysis.

US PAT NO: 4,365,199 :IMAGE AVAILABLE: L30: 10 of 12

ABSTRACT:
An insert for insertion into a circularly cross-sectioned sample tube for use in nuclear magnetic resonance spectrometry for reducing temperature variations in the sample and dispersing heat generated. The insert includes two spaced end plugs having arcuate sides to thermally mate with the interior of the sample tube. The end plugs include a venting passageway for allowing flow of fluids past the plugs when the insert is moved into and out of a sample in the tube. An elongate circular rod is positioned between and connected to the end plugs and positioned to be

coaxially positioned in the sample tube. The rod has a cross-sectional area of less than the end plugs for providing an annular sample chamber when positioned in a sample tube. The end plugs and the rod are of beryllium oxide for conducting heat from and reducing temperature variations in the sample tube. The sample tube may also be of beryllium oxide. An attachment is connected to one of the plugs for inserting and removing the insert from a sample tube, and a guide is provided on the other of the plugs for guiding the insert into a tube. If desired, a heatsink grease may be positioned on the sides of the end plug for providing greater thermal transmission between the insert and the tube.

US PAT NO: 4,240,797 :IMAGE AVAILABLE: L30: 11 of 12

ABSTRACT:
Spin labels, especially dianionic aromatic spin labels which can bind to the first specific high-affinity bilirubin-binding site on serum albumin, and which are quantitatively displaceable into solution from said site in the presence of bilirubin, can be used in an assay for bilirubin-binding capacity. In the assay, an excess of spin label is mixed with the serum albumin or serum and is titrated with standard bilirubin. ESR spectroscopy indicates a change in the rate of spin label release with addition of bilirubin, giving a value indicative of bilirubin-binding capacity. Novel dianionic aromatic spin labels are also disclosed.

US PAT NO: 3,655,288 :IMAGE AVAILABLE: L30: 12 of 12

ABSTRACT:
New and improved optical system for use in apparatus for the automatic, simultaneous multielement analysis of samples by atomic spectroscopy which include a plurality of radiation sources effective to emit radiation of different wavelengths for the irradiation of a sample burner flame are provided, and comprise radiation source optic means including a plurality of toroidal mirrors for reflecting the radiation from said plurality of radiation sources and focusing said radiation substantially at the same volume of said sample burner flame for irradiation thereof, and detector means optics, including spaced primary and secondary mirrors for observing substantially only said irradiated sample burner flame volume and focusing substantially only the radiation therefrom at the radiation detector.

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=> s pct/ep94/00117/ptan
L39          0 PCT/EP94/00117/PTAN

=> s pct/ep93/03077/ptan
L40          0 PCT/EP93/03077/PTAN

=> s 4035799?/pran
L41          1 4035799?/PRAN

=> d

1.  5,239,178, Aug. 24, 1993, Optical device with an illuminating grid
and detector grid arranged confocally to an object; Eberhard Derndinger,
et al., 250/234; 359/397 :IMAGE AVAILABLE:

=> d prir

US PAT NO:     5,239,178 :IMAGE AVAILABLE:            L41: 1 of 1
FRN-PRIOR:     Federal Republic of Germany4035799      Nov. 10, 1990
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WO 09410564A1 May 11, 1994 L17: 1 of 1

PROCESS FOR SEPARATING SUBSTANCES FROM DILUTE SOLUTIONS AND SUSPENSIONS

INVENTOR: MANFRED EIGEN, et al. (2)
ASSIGNEE: DIAGEN INST MOLEKULARBIO, et al. (3)
APPL NO: **EP 09303077W**
DATE FILED: Nov. 3, 1993
PATENT ABSTRACTS OF EUROPE
ABS GRP NO:
ABS VOL NO:
ABS PUB DATE:
INT-CL: G01N 30/30; B01L 7/00

ABSTRACT:

ABSTRACT DATA NOT AVAILABLE

EP 00487775A1 Jun. 3, 1992 L20: 2 of 3

Process of removing and concentrating desired molecules from solutions.

INVENTOR: JERALD S BRADSHAW, et al. (3)
ASSIGNEE: UNIV BRIGHAM YOUNG
APPL NO: EP 90122858A
DATE FILED: Nov. 29, 1990
PATENT ABSTRACTS OF EUROPE
ABS GRP NO:
ABS VOL NO:
ABS PUB DATE:
INT-CL: B01D 15/00; B01J 20/32; B01J 45/00

ABSTRACT:

    A method is disclosed for the quantitative removal and concentration of desired molecules or ions, such as gases, anions and amino acids, from a source solution which may contain larger concentrations of other molecules. The method comprises bringing the source solution into contact with a solid cation-ligand-matrix consisting of a cation complexed to a ligand molecule covalently bonded to a matrix consisting of an organic spacer bonded to a solid inorganic support through a silicon atom. The cation has an affinity for the desired molecules to form a complex between the desired molecules and the cation portion of the solid cation-ligand-matrix at binding sites initially held by H2O or other weakly coordinated ligands or via ion pairing. The desired molecule complex is broken releasing either the desired molecules or desired molecules complexed with the cation by contacting the solid cation-ligand-matrix-desired molecule complex with a much **smaller volume** of a receiving solution in which said desired molecules are soluble. The concentrated ions or **molecules** thus removed may be **analyzed** and/or recovered by known methods. The process is useful in measuring the concentrations of molecules originally present at parts per billion levels; in the removal of low levels of toxic molecules such as ammonia or anions such as chromate from potable and saline water; in the preparation of ultrapure salts and gases; and in the recovery of valuable molecules present in low concentrations as in the separation of amino acids, etc.

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DE 04035799A1 May 14, 1992 L4: 2 of 2

Confocal scanning microscope with computer control - has illumination raster corresponding to raster of CCD sensor receiving image of scanned object

INVENTOR: KLAUS DR KNUPFER, et al. (2)
ASSIGNEE: ZEISS CARL FA
APPL NO: DE 04035799A
DATE FILED: Nov. 10, 1990
PATENT ABSTRACTS OF EUROPE
ABS GRP NO:
ABS VOL NO:
ABS PUB DATE:
INT-CL:

ABSTRACT:

The confocal scanning microscope has a light source (11) and confocal optical elements (13o, 13u, 13t) providing an image of the illumination plane (11b) at a focal plane (13f) containing the object (14). An illumination raster (12) is contained in the illumination plane (11b), corresponding to the raster of the photosensitive area of the CCD sensor (17) located at a stop plane (17b) receiving an image of the focal plane (13f). Pref. the illumination raster (12) is provided by holes (12l) in an opaque layer (12s) illuminated by the light source (11). The CCD sensor (17) is coupled to a computer controlling the relative movement of the scanning microscope. USE - For evaluating surface profile of scanned object.

=> d l20 1-3 all

US 05250188A Oct. 5, 1993 L20: 1 of 3

Process of removing and concentrating desired molecules from solutions

INVENTOR: RONALD L BRUENING, et al. (3)
ASSIGNEE: UNIV BRIGHAM YOUNG
APPL NO: US 40167089A
DATE FILED: Sep. 1, 1989
PATENT ABSTRACTS OF EUROPE
ABS GRP NO:
ABS VOL NO:
ABS PUB DATE:
INT-CL: C02F 1/42

ABSTRACT:

A method is disclosed for the quantitative removal and concentration of desired molecules or ions, such as gases, anions and amino acids, from a source solution which may contain larger concentrations of other molecules. The method comprises bringing the source solution into contact with a solid cation-ligand-matrix consisting of a cation complexed to a ligand molecule covalently bonded to a matrix consisting of an organic spacer bonded to a solid inorganic support through a silicon atom. The cation has an affinity for the desired molecules to form a complex between the desired molecules and the cation portion of the solid cation-ligand-matrix at binding sites initially held by H2O or other weakly coordinated ligands or via ion pairing. The desired molecule complex is broken releasing either the desired molecules or desired molecules complexed with the cation by contacting the solid cation-ligand-matrix-desired molecule complex with a much **smaller volume** of a receiving solution in which said desired molecules are soluble. The concentrated ions or **molecules** thus removed may be **analyzed** and/or recovered by known methods. The process is useful in measuring the concentrations of molecules originally present at parts per billion levels; in the removal of low levels of toxic molecules such as ammonia or anions such as chromate from potable and saline water; in the preparation of ultrapure salts and gases; and in the recovery of valuable molecules present in low concentrations as in the separation of amino acids, etc.